

## **REMARKS/ARGUMENTS**

### **Abstract Amendments**

The Applicant has amended the abstract to shorten it. The Applicant submits that these amendments bring the abstract into compliance with 37 C.F.R. 1.72.

### **Claim Amendments**

Claim 3 has been amended to provide improved antecedent basis for the module feed inlet; module outlet and permeate outlet.

Claim 1 has been amended to correspond to the changes made to claim 3.

Claim 5 has been amended to remove the references to lumens and hollow fiber membranes.

New claims 14 and 15 are added as supported by, for example, page 22, lines 30-32 and page 25, line 7 of the application.

The Applicant submits that no new matter is added by these amendments. Claims 1, 3-9 and 14-15 are now pending.

### **Claim Rejections- 35 U.S.C. § 112**

The Office Action states that "the module feed inlet" (claim 3); "the module outlet" (claim 3); "the lumens" (claim 5); and "the hollow fibre membranes" (claim 5) lack proper antecedent basis. The Office Action also states that the antecedent basis for "the outlet" in claim 1 is unclear. The Applicant submits that claims 1, 3 and 5,

as amended, and all dependent claims are within the requirements of the second paragraph of 35 U.S.C. §112.

**Claim Rejections- 35 U.S.C. § 103**

The Office Action rejected claims 3 and 4 under 35 U.S.C. § 103(a) as being unpatentable over Uhlinger (U.S. 6,190,556). The Office Action states that, although the claimed minimum feed/retentate velocity is not taught, it is within ordinary skill and depends upon pressure and temperature of the system; the hardness concentration of the water; desired purity etc. The Office Action also states that, "the minimum velocity between stages also depends upon outlet flow rate of reverse osmosis produce through line 71."

The Applicant respectfully submits that the Office Action does not meet the requirements for stating the range of minimum feed/retentate velocity is obvious as stated at MPEP 2144.05. The Office Action notes that feed velocity might depend on numerous parameters but does not show that Uhlinger teaches anything in regard to these parameters.

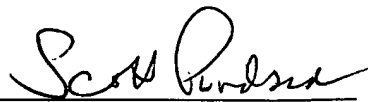
Uhlinger also does not teach all the elements found in the current invention. For example, Uhlinger does not describe feeding feed water into the module in a single pass as described in part (b) of claim 3. Instead, Uhlinger passes feed thorough the module in two passes (column 3, lines 14-19).

The Office Action also rejected claims 1 and 4-9 as being unpatentable under 35 U.S.C. § 103(a) over Uhlinger as applied to claim 3 in view of Japanese Publication 63-171605 (hereafter '605). For the reasons above, the Applicants submit that Uhlinger does not make the elements of claim 3 obvious. Regarding the additional elements of the dependent claims, the Office Action states that '605, "teaches backwashing of hollow fiber lumens of a membrane module with water having CO<sub>2</sub> therein at a time when permeate production is stopped." The Applicants note that '605 describes backwashing with permeate having CO<sub>2</sub> therein. In contrast, claim 1 describes reversing the direction of feed flow. Claim 4 refers to a minimum feed velocity. Claims 5-9 refer to adding carbon dioxide to feed water. Accordingly, none of these claims describe a step of backwashing with permeate having CO<sub>2</sub> and so '605 does not disclose the elements of these claims not provided in Uhlinger. Regarding claim 6, the Office Action states that it would be obvious to add CO<sub>2</sub> to water to have the Langelier zero or slightly negative to provide a suitable washing fluid. Claim 6 however, relates to adding CO<sub>2</sub> to feed water, not a washing fluid.

For the reasons above, the Applicants submit that the claims are allowable.

Respectfully submitted,

Husain et al.

By 

Scott Pundsack  
Reg. No. 47,330  
Tel: (416) 957-1698